

Appl. No. : 10/079,077
Filed : February 19, 2002

AMENDMENTS TO THE CLAIMS

Please amend the Claims as follows. Insertions are shown underlined while deletions are ~~struck through~~.

1 (canceled)

2 (canceled)

3 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a frame, which is adapted to encircle a pipe body and to be fixed to a supporting portion, and

a fixing mechanism, which serves to fix the pipe body to the frame,

wherein the fixing mechanism comprises (i) edge portions formed on an inner surface of the frame for receiving an outer surface of the pipe body from one side in a radial direction of the pipe body by pinching the pipe body, and (ii) wedge bodies for blocking movements of the pipe body in a pipe axial direction with respect to the frame upon being pressed against an outer surface of the pipe body from the other side in the radial direction of the pipe body through pressing force acting from the frame towards the pipe body, and

wherein the wedge bodies are disposed at specified intervals in the pipe axial direction, while a posture of the wedge bodies is set in a condition such that directions of wedge actions of one pair of wedge bodies adjoining in the pipe axial direction are opposite with respect to each other in the pipe axial direction.

4 (canceled)

5 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a frame, which is adapted to encircle a pipe body and to be fixed to a supporting portion, said frame ~~being comprised by integrally forming~~comprising i) a mounting seat portion to be fixed to the supporting portion, ii) a pipe supporting portion for encircling the pipe body rising vertically up ~~up~~ from the mounting seat portion, and iii) a rib attached to the mounting seat portion, extending that is in line with a pipe axial direction, and connected to the pipe supporting portion, wherein the mounting seat portion, the pipe

supporting portion, and the rib are rigidly integrally formed, said pipe supporting portion being two-split in a radial direction and the pair of separated pipe supporting portions being coupled together by a coupling means; and

a fixing mechanism, which serves to fix the pipe body to the frame,

wherein the fixing mechanism comprises male screw members for blocking movements of the pipe body in a pipe axial direction with respect to the frame by pressing an outer surface of the pipe body with their tip end portions in a condition in which they are screwed into female screw portions formed in the frame, and said male screw members are provided to be dispersed in a circumference direction.

6 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 5, wherein the tip end portions of the male screw members are indented.

7 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

~~a frame, which is adapted to encircle~~a pipe body and to be fixed to a supporting portion, said frame having an inner circumferential surface for encircling the pipe body, and

a fixing mechanism, which serves to fix a pipe body to the frame,

said fixing mechanism comprising (i) edge portions for receiving an outer surface of the pipe body, said edge portions formed on a first portion of an~~the~~ inner circumferential surface of the frame in a circumference direction, and (ii) male screw members for blocking movements of the pipe body in a pipe axial direction with respect to the frame, said male screw members provided on ~~another~~a second portion of the inner circumferential surface of the frame, wherein the first portion of the inner circumferential surface and the ~~another~~second portion of the inner circumferential surface face to each other, and said male screw members press against an outer surface of the pipe body at their tip end portions when the male screw members are screwed into female screw portions formed in the frame.

8 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 7, wherein the tip end portions of the male screw members are indented.

Appl. No. : 10/079,077
Filed : February 19, 2002

9 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a frame, which is adapted to ~~encircle~~encircle a pipe body and to be fixed to a supporting portion, and

a fixing mechanism, which serves to fix a pipe body to the frame,

said fixing mechanism comprising (i) movement blocking bodies for blocking movements of the pipe body in a pipe axial direction, said movement blocking bodies being arranged along an inner circumference of the frame and supported therein, each movement blocking body having a pair of edge portions at an interval in the pipe axial direction and a top surface with rounded edges, and (ii) pressing screw members for pressing at the top surface of each movement blocking body through the frame, whereby the edge portions of each movement blocking body press against an outer surface of the pipe body.

10 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a frame, which is adapted to ~~encircle~~encircle a pipe body and to be fixed to a supporting portion, said frame comprising (i) a first receiving portion which is a half of the frame and (ii) a second receiving portion which is another half of the frame, said first receiving portion and said second receiving portion being detachable, said first receiving portion and said second receiving portion having respective inner circumferential surfaces for encircling the pipe body, and

a fixing mechanism, which serves to fix a pipe body to the frame,

said fixing mechanism comprising arc-shaped edge portions formed on the inner circumferential surfaces of the first receiving portion and the second receiving portion for receiving an outer surface of the pipe body in a circumference direction.

11 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 10, wherein the edge portion is set in a posture that is in line with a peripheral direction of the first receiving portion or the second receiving portion, and in that a plurality thereof is disposed at specified intervals in the peripheral direction and an axial core direction of the first receiving portion or the second receiving portion.

Appl. No. : **10/079,077**
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12 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 10, wherein the edge portion is set in a posture that is in line with a peripheral direction of the first receiving portion or the second receiving portion, and in that a plurality thereof is disposed at specified intervals in an axial core direction of the first receiving portion or the second receiving portion.

13 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 10, wherein the edge portion is set in a posture that is inclined with respect to an axial core direction of the first receiving portion or the second receiving portion, and in that a plurality thereof is disposed at specified intervals in the peripheral direction and the axial core direction of the first receiving portion or the second receiving portion.

14 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 10, wherein edge portions of a posture that is in line with the peripheral direction of the first receiving portion or the second receiving portion and edge portions of a posture that is inclined with respect to the axial core direction of the first receiving portion or the second receiving portion are mixed.

15 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a frame, which is adapted to ~~encircle~~enclose a pipe body and to be fixed to a supporting portion, and

a fixing mechanism, which serves to fix a pipe body to the frame,

said fixing mechanism comprising (i) movement blocking bodies for blocking movements of the pipe body in a pipe axial direction, each movement blocking body ~~being~~ having three or more edge portions at intervals in the pipe axial direction, or alternatively, one edge portion, and (ii) pressing screw members for pressing a top surface of each movement blocking body through the frame, whereby only the edge ~~portion or~~ portion(s) are in contact with and pressed against the outer surface of the pipe body.

16 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a ring body, which encloses a pipe body,

a plurality of pressing portions, which press the pipe body from outside in a radial direction while being dispersed in a peripheral direction of the ring body, and

a frame, which is provided as a separate body than the ring body and is fixed to a fixing portion, said frame ~~being comprised by integrally forming~~ comprising i) a mounting seat portion to be fixed to the fixing portion, ii) a pipe supporting portion rising ~~up~~ vertically from the mounting seat portion, and iii) a rib attached to the mounting seat portion, extending that is in line with a pipe axial direction, and connected to the pipe supporting portion, wherein the mounting seat portion, the pipe supporting portion, and the rib are rigidly integrally formed, and

said pipe supporting portion having a supporting portion, which is provided at the frame for receiving and supporting the ring body.

17 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 16, wherein the supporting portion is arranged in that a concave portion for receiving and accumulating a portion of the ring body portion or a portion of the belt body is provided at the frame.

18 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 16, wherein the frame is arranged by mutually coupling a pair of separated frames made of an angle member disposed in a condition in which they are aligned in the pipe axial direction of the pipe body, and

that the supporting portion is arranged in that a first restricting portion for receiving and restricting the ring body in vertical directions, a second restricting portion for receiving and restricting the same from outside in lateral directions, and a third restricting portion for receiving and restricting the same in the axial core direction of the pipe body are provided at the respective separated frames.

19 (currently amended): A supporting device for non-averaged force in a pipeline comprising:

a belt body, which encircles and fastens a pipe body, and

a frame, which is provided as a separate body than the belt body and which is fixed to a fixing portion, said frame ~~being comprised by integrally forming~~ comprising i) a mounting seat portion to be fixed to the fixing portion, ii) a pipe supporting portion

rising ~~up~~ vertically from the mounting seat portion, and iii) a rib attached to the mounting seat portion, extending that is in line with a pipe axial direction, and connected to the pipe supporting portion, wherein the mounting seat portion, the pipe supporting portion, and the rib are rigidly integrally formed, and

said pipe supporting portion having a supporting portion, which is provided at the frame for receiving and supporting the belt body.

20 (original): The supporting device for non-averaged force in a pipeline as claimed in Claim 19, wherein the supporting portion is arranged in that a concave portion for receiving and accumulating a portion of the ring body portion or a portion of the belt body is provided at the frame.

21 (previously presented): The supporting device for non-averaged force in a pipeline as claimed in Claim 16, wherein said ring body is two-split in a radial direction and the pair of separated ring bodies are coupled together by a coupling means.

22 (previously presented): The supporting device for non-averaged force in a pipeline as claimed in Claim 19, wherein said belt body is two-split in a radial direction and the pair of separated belt bodies are coupled together by a coupling means.